

WHAT IS CLAIMED IS

1. A process for producing a lead-acid battery characterized in that a lead bushing integrally cast in a lid of an assembled lead-acid battery and a pole inserted through the lead bushing are welded together by a laser welding.
2. A process for producing a lead-acid battery characterized in that welding of a lead bushing integrally cast in a lid of an assembled lead-acid battery and a pole inserted through the lead bushing and welding of the lead bushing and a tab terminal member fitly mounted on the lead bushing are carried out by a laser welding.
3. A process for producing a lead-acid battery according to claim 1 or 2, wherein the pole and the lead bushing is made of a lead-calcium based alloy.
4. A process for producing a lead-acid battery according to claim 1, 2 or 3, wherein the pole is provided with a columnar projection or a hollow cylindrical projection at the center of the upper end surface thereof.
5. A process for producing a lead-acid battery according to claims 1 to 4, wherein at the time of the laser welding, a laser beam of a low output is applied and thereafter a laser beam of a high output is applied.
6. A process for producing a lead-acid battery according to claim 5, wherein the first round of the application of the laser beam is made at the low output and the second round thereof is made at the high output reduced stepwise at the plural number of stages.
7. A process for producing a lead-acid battery according to any

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8. A process for producing a lead-acid battery according to any of claims 1 to 7, wherein a lap density of beads in the laser welding of a pulsed type is in a range of 6 to 12 points per mm.

9. A process for producing a lead-acid battery according to any of claims 1 ~ 8, wherein at the time of laser-welding by applying the laser to terminal portions to be welded of the lead-acid battery, there is used such a process for laser-welding of the terminal portions that the terminal portions are surrounded by a lower cylindrical end portion of a cylindrical shield, and, in this state, fumes generated at the time of the laser-welding are sucked to be exhausted to the outside of the cylindrical shield through the exhaust port in the cylindrical shield.

10. A process for producing a lead-acid battery according to claim 9, wherein there is used such a process for laser-welding of the terminal portions that a discharge opening is made in the cylindrical shield, and oxygen or air is supplied through the discharge opening to the portions to be welded.

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may be sucked to be exhausted out of the cylindrical shield through the communication openings of the shroud ring, the annular space surrounding thereof and the exhaust port, together with a shielding fluid flowed through the discharge opening into the cylindrical shield.

12. A process for producing a lead-acid battery according to claim 11, wherein the plural number of communication holes made at regular intervals in the shroud ring are formed into those which are open in a circumferentially tangent direction of the ring, whereby an eddy flow is occurred in the fumes generated inside the shroud ring and is sucked to be exhausted.

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13. A process for producing a lead-acid battery according to claim 9 or 12, wherein there is used such a process for laser-welding of the terminal portions, wherein an annular notched step is provided on a peripheral outer surface of the lead bushing defining an outer peripheral surface of the terminal portions, and the lower cylindrical end portion of the cylindrical shield having a good heat-conductivity is fitly mounted on the step thereof.

14. A laser-welding jig characterized in that an opening of the upper surface of a cylindrical body made of a metal having a good heat conductivity is closed by a light-transmission plate and a lower cylindrical portion thereof is adapted to be fitly mounted on the outer peripheral surface of a terminal of a lead-acid battery, so that a cylindrical shield is formed, and the cylindrical shield which is provided with the plural number of discharge openings for a shield fluid disposed

15. A laser-welding jig, wherein the cylindrical shield is provided with a plurality of air-intake openings disposed at an upper portion thereof, and the exhaust port communicating with the annular space is made in the side of the cylindrical shield below the air-intake openings.

15. A laser-welding jig, wherein the cylindrical shield is provided with a plurality of air-intake openings disposed at an upper portion thereof, and the exhaust port communicating with the annular space is made in the side of the cylindrical shield below the air-intake openings.